CLAIMS

What is claimed is:

1. A system for predicting earthquakes comprising:

a first transducer array comprising:

a first plurality of seismometers adapted to detect a plurality of wave movements resulting from dilation of the crust of the Earth prior to an earthquake, wherein said first plurality of seismometers detect said wave movements and convert at least one of said wave movements into a first voltage;

at least one first clock, wherein said at least one first clock is in communication with at least one of said first plurality of seismometers and is adapted to determine a time at which at least one of said first plurality of seismometers detects said wave movements; and

at least one first digitizer, wherein said at least one first digitizer is in communication with at least one of said first plurality of seismometers and is adapted to convert said first voltage into digital data, wherein said at least one first digitizer comprises a first data transmitter;

a communications interface module; and

a data processor, wherein said first data transmitter transmits said digital data and said time to said communications interface module, and said communications module transmits said digital data and said time to said data processor, wherein said data processor is adapted to determine at least one characteristic of at least one of said waves, and said first transducer array is positioned adjacent to a seismically active region and below the water table.

2. The system of claim 1, wherein said at least one characteristic comprises a direction of at least one of said wave movements.

3. The system of claim 1, wherein said at least one characteristic comprises a velocity of at least one of said waves and an amplitude of at least one of said waves.

4. The system of claim 3, wherein said at least one characteristic comprises a direction of at least one of said wave movements.

5. The system of claim 1, wherein said first transducer array further comprises at least one first global positioning receiver, wherein said at least one global positioning receiver is in communication with at least one of said first plurality of seismometers and comprises said at least one first clock, wherein said at least one first global positioning receiver is adapted to

determine a location of at least one of said first plurality of seismometers and said first data transmitter transmits said digital data, said time, and said location to said communications interface module, wherein said communications module transmits said digital data, said time, and said location to said data processor.

6. The system of claim 5, wherein said system further comprises a second transducer array, wherein said second transducer array comprises:

a second plurality of seismometers adapted to detect a plurality of wave movements resulting from dilation of the crust of the Earth prior to an earthquake, wherein said second plurality of seismometers detect said wave movements and convert at least one of said wave movements into a second voltage;

at least one second global positioning receiver, wherein said at least one second global positioning receiver is in communication with at least one of said second plurality of seismometers and is adapted to determine a location of at least one of said second plurality of seismometers, wherein said at least one second global positioning receiver comprises a second clock adapted to determine a time at which at least one of said second plurality of seismometers detects said wave movements; and

at least one second digitizer, wherein said at least one second digitizer is in communication with at least one of said second plurality of seismometers and is adapted to convert said second voltage into digital data, wherein said at least one second digitizer comprises a second data transmitter and said second data transmitter transmits said digital data, said time, and said location to said communications interface module, wherein said communications module transmits said digital data, said time, and said location to said data processor, and said second transducer array is positioned adjacent to said seismically active region and below the water table.

7. The system of claim 6, wherein said first transducer array is positioned between about 30 kilometers and about 70 kilometers from said second transducer array.

8. The system of claim 7, wherein at least one of said first plurality of seismometers is positioned between about 15 meters about 1500 meters from another of said first plurality of seismometers, and at least one of said second plurality of seismometers is positioned between about 15 meters and about 1500 meters from another of said second plurality of seismometers.

9. The system of claim 7, wherein each of said first plurality of seismometers are multi-axis seismometers and each of said second plurality of seismometers are multi-axis seismometers.

10. The system of claim 1, wherein each of said first plurality of seismometers are multi-axis seismometers.

11. The system of claim 1, wherein said first transducer array is positioned below the water table and less than about 100 meters below the surface of the crust of the Earth.

12. The system of claim 1, wherein each of said plurality of seismometers comprises a filter adapted to discriminate between said wave movements resulting from dilation of the crust of the Earth and movements resulting from at least one other event.

13. The system of claim 1, wherein a number of said at least one first digitizers employed in said system is the same as a number of said first plurality of seismometers employed in said system.

14. The system of claim 13, wherein a number of said at least one first clocks employed in said system is the same as said number of said first plurality of seismometers employed in said system.

15. The system of claim 5, wherein a number of said at least one first digitizers; said at least one first clocks; and said at least one first global positioning receivers employed in said system is the same as a number of said first plurality of seismometers employed in said system.

16. The system of claim 5, wherein said at least one first global positioning receiver comprises a global positioning satellite receiver.

17. A method of predicting earthquakes comprising the steps of:

positioning a first transducer array adjacent to a seismically active region and below the water table, wherein said first transducer array comprises:

a first plurality of seismometers;

at least one first clock, wherein said at least one first clock is in communication with at least one of said first plurality of seismometers; and

at least one first digitizer, wherein said at least one first digitizer is in communication with at least one of said first plurality of seismometers;

detecting a plurality of wave movements resulting from dilation of the crust of the Earth prior to an earthquake and converting at least one of said wave movements into a first voltage;

discriminating between said wave movements resulting from dilation of the crust of the Earth and movements resulting from at least one other event, wherein the step of discriminating comprises the step of filtering out wave movements having a frequency below a first predetermined frequency;

determining a time at which said wave movements are detected by at least one of said first plurality of seismometers;

converting said first voltage into digital data;

transmitting said digital data and said time from said at least one first digitizer to a communications interface module;

transmitting said digital data and said time from said communications interface module to a data processor; and

determining a likelihood of at least one future earthquake based on a number of said wave movements detected over a predetermined period of time.

18. The method of claim 17, further comprising the steps of:

determining a velocity and an amplitude of said waves; and

determining an approximate magnitude of said at least one future earthquake based on said velocity and said amplitude of said waves.

19. The method of claim 17, further comprising the steps of:

determining a direction of said wave movements; and

determining an approximate location of said at least one future earthquake based on said direction of said wave movements.

20. The method of claim 19, further comprising the steps of:

determining a velocity and an amplitude of said waves; and

determining an approximate magnitude of said at least one future earthquake based on said velocity and said amplitude of said waves.

21. The method of claim 17, wherein said first transducer array further comprises at least one first global positioning receiver in communication with at least one of said first plurality of seismometers, wherein said at least one first global positioning receiver comprises said at least one first clock, and said method further comprises the steps of:

determining a location of at least one of said first plurality of seismometers which detected said wave movements;

transmitting said digital data, said time, and said location to said communications interface module; and

transmitting said digital data, said time, and said location to said data processor.

22. The method of claim 21, further comprising the steps of:

positioning a second transducer array adjacent to said seismically active region and below the water table, wherein said second transducer array comprises:

a second plurality of seismometers;

at least one second global positioning receiver, wherein said at least one second global positioning receiver is in communication with at least one of said second plurality of seismometers and comprises a second clock; and

at least one second digitizer, wherein said at least one second digitizer is in communication with at least one of said second plurality of seismometers;

detecting a plurality of wave movements resulting from dilation of the crust of the Earth prior to an earthquake and converting said wave movements into a second voltage;

determining a time at which said wave movements are detected by at least one of said second plurality of seismometers;

determining a location of at least one of said second plurality of seismometers which detected said wave movements;

converting said second voltage into digital data; and

transmitting said digital data, said time, and said location from said at least one second digitizer to said communications interface module.

23. The method of claim 22, wherein said first transducer array is positioned between about 30 kilometers and about 70 kilometers from said second transducer array.

24. The method of claim 23, wherein at least one of said first plurality of seismometers is positioned between about 15 meters and about 1500 meters from another of said first plurality of seismometers, and at least one of said second plurality of seismometers is positioned between about 15 meters and about 1500 meters from another of said second plurality of seismometers.

25. The method of claim 22, wherein each of said first plurality of seismometers are multi-axis seismometers and each of said second plurality of seismometers are multi-axis seismometers.

26. The method of claim 17, wherein each of said first plurality of seismometers are multi-axis seismometers.

27. The method of claim 17, further comprising the step of advising at least one government official of the at least one future earthquake.

28. The method of claim 17, wherein said first transducer array is positioned below the water table and less than about 100 meters below the surface of the crust of the Earth.

29. The method of claim 17, wherein the step of discriminating further comprises the step of filtering out wave movements having a frequency above a second predetermined frequency.

30. The method of claim 29, wherein said first predetermined frequency is about 180 Hertz and said second predetermined frequency is about 360 Hertz.